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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,363	06/27/2003	Darshan B. Joshi	VRT0010C1US	8215
60429 7590 12/20/2006 CSA LLP 4807 SPICEWOOD SPRINGS RD. BLDG. 4, SUITE 201 AUSTIN, TX 78759			EXAMINER JOO, JOSHUA	
			ART UNIT 2154	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/609,363	Applicant(s) JOSHI ET AL.	
	Examiner Joshua Joo	Art Unit 2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-46 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 25-46 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. Claims 25-46 are presented for examination.

Response to Arguments

2. Applicant's arguments filed 10/16/2006 have been fully considered but they are not persuasive.

Applicant argued that:

3. (1) Mashayekhi does not provide teaching or suggestion regarding the situation where the set of systems that meet an application hosting requirement is empty, i.e. none of the nodes are suitable.

4. In response, if Applicant is relying on the limitation of "when the set of systems is empty" as where none of the failover nodes are suitable. It is noted that the features upon which applicant relies (i.e. where none of the failover nodes are suitable) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Mashayekhi teaches of,

- i) "determining whether the weight is sufficiently low to indicate that the node has sufficient available resources to satisfy the resources needed by the first node... If not, then next node is examined, and so on until a suitable failover node is found." (Col. 8, lines 28-34)

Above cited section of Mashayekhi teaches of nodes with insufficient resources, which meets the scopes of the limitation of "the set of system is empty".

5. (2) There is no teaching or suggestion to use application priority for identifying a resource to free, as required by the applicants claims.

6. In response, Mashayekhi does not specifically teach the limitation of "using a respective priority for each of the applications for identifying a resource to free,". Thus, Mashayekhi was combined with Stiffler to overcome the missing limitation. Stiffler teaches an invention similar to Mashayekhi, wherein,

- ii) “the surviving computer 1) may run applications of both computers (itself and the failed computer) with a decrease in throughput for any one application 2) may terminate its own applications and only run those of the failed computer, or 3) may run a subset of the combined applications that are of sufficiently high priority.” (Col. 10, lines 15-22)

Cited section (ii) of Stiffler teaches of different situations for running applications. It would have been clear to one of ordinary skill in the art that these situations are provided because a computer has limited resources. Situation 1 runs both computers' application with decreased throughput, i.e. there is insufficient resource to fully run both computers' applications, and thus applications are run with decreased throughput. Situation 2 terminates the surviving computer's application to run the failed computer, i.e. the surviving computer provides resources to run the failed computer's application. Regarding situation 3, a subset of high priority applications of both failed computer and surviving computer are run. Stiffler does not explicitly teach of identifying a resource to free. However, by running a subset of high priority applications to run, a relationship between the priorities of the applications must be determined to identify which applications are of the high priority. Clearly then, applications not in the subset of high priority are identified and not run. Thus, resource is freed.

7. (3) Examiner has not shown that there is some suggestion or motivation to combine the references, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

8. In response, Examiner set forth in the Office Action dated 5/15/2006 that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Mashayekhi and Stiffler because Stiffler teachings to use priorities of applications to free resources to run applications would ensure that high priority applications of a failed node may operate on another node when a suitable failover node cannot be found. Cited section (i) of Mashayekhi teaches of continually examining nodes for nodes with sufficient resources. It is reasonably possible that a node may not be

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found with sufficient resources since there can't be an infinite number of nodes or a number too great due to the cost of implementation. Cited section (ii) of Stiffler teaches of providing resources to run high priority applications of a failed node.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 25-29, 31-40, 42-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mashayekhi et al, US Patent #6,922,791 (Mashayekhi hereinafter), in view of Stiffler, US Patent #5,958,070 (Stiffler hereinafter).

11. As per claims 25 and 36, Mashayekhi teaches substantially the invention as claimed including a method and an apparatus, Mashayekhi's teaching comprising:

identifying a set of systems of a plurality of systems (Col 8, lines 14-46. failing node and failover node of a plurality of nodes.), wherein

each system in the set of systems meets a requirement for hosting a first application of a plurality of applications (Col 8, lines 28-34, 50-66. Node may host application.), and

the plurality of systems form at least one cluster (Col 8, lines 28-57. Cluster.); and

when the set of systems is empty (Col 8, lines 28-34. No available resources.).

wherein the resource is one of a plurality of resources, and each resource is associated with at least one of the systems (Col 8, lines 14-34, 47-57. Resource and application on nodes.).

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12. Mashayekhi teaches substantial features of the claimed including continually determining the availability of resources of nodes until a suitable failover is found (Col 8, lines 28-34), and assigning priorities to applications (Col 8, lines 58-66). However, Mashayekhi does not teach of when the set of systems is empty, using a respective priority for each of the applications for identifying a resource to free. Stiffler teaches a similar invention of starting the applications of first computer on a second computer when the first computer fails, wherein priorities of applications are used for freeing resources (Col 10, lines 16-22).

13. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Mashayekhi and Stiffler because both teachings deal with failing over applications of a first node to a second node. Furthermore, the teachings of Stiffler to use priorities of applications to free resources to run applications would improve the system of Mashayekhi by ensuring that high priority applications of a failed node may operate on another node when a suitable failover node cannot be found.

14. As per claims 26 and 37, Mashayekhi teaches the method of claim 25 wherein the identifying the resource further comprises using a respective capacity for each of the plurality of systems for identifying the resource (Col 8, lines 28-34. Identify if the weight is sufficiently low to indicate that the node has sufficient available resources to satisfy needed by failed node.).

15. As per claims 27 and 38, Mashayekhi does not teach the method of claim 25 further comprising: freeing the resource such that an associated system of the plurality systems meets the requirements for hosting the first application. Stiffler teaches of freeing the resource to run applications (Col 10, lines 16-22).

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16. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Mashayekhi and Stiffler because the teachings of Stiffler to free resource to run applications would improve the system of Mashayekhi and Stiffler by ensuring that high priority applications of a failed node may operate on another node when a suitable failover node cannot be found.

17. As per claims 28 and 39, Mashayekhi and Stiffler taught the method of claim 27. Mashayekhi further teachings the method comprising: starting the first application on the associated system (Col 8, lines 28-34, 53-67. Application is failed over to another node.).

18. As per claims 29 and 40, Mashayekhi does not teach the method of claim 27 wherein the freeing the resource comprises stopping a second application that is using the resource, wherein the second application has a lower respective priority than a respective priority of the first application. Stiffler teaches of stopping applications that is using the resources based on priority, and further teaches of running applications with high priority (Col 10, lines 16-22).

19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Mashayekhi and Stiffler because the teachings of Stiffler to stop applications that is using resources based on priority and run applications with high priority would improve the system of Mashayekhi and Stiffler by ensuring that high priority applications of a failed node may operate on another node when a suitable failover node cannot be found.

20. As per claims 31 and 42, Mashayekhi teaches the method of claim 25 further comprising: determining that the first application is to be started (Claim 1; Col 7, line 11-18; Col 8, line 26-28, 62-65. Determine failure of node. Application is to be failed over.).

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21. As per claims 32 and 43, Mashayekhi teaches the method of claim 31 wherein the determining that the first application is to be started comprises detecting that the first application failed (Claim 1; Col 7, line 11-18; Col 8, line 26-28, 62-65. Determine failure of node.).

22. As per claims 33 and 44, Mashayekhi does not specifically teach the method of claim 31 wherein the determining that the first application is to be started comprises comparing a respective priority of the first application with each of a set of respective priorities for a set of the applications running on the plurality of systems, and determining that the first application is to be started when the respective priority of the first application is higher than one of the set of respective priorities for the set of applications running on the plurality of systems. Stiffler teaches of determining the priority of a failing computer's application with the priority of another computer's applications; and determining what applications may run based on priority (Col 10, lines 16-22).

23. Mashayekhi and Stiffler do explicitly teach that the first application is to be started when the respective priority of the first application is higher than one of the set of respective priorities for the set of applications running in the systems. However, Stiffler does teach that only high priority applications may be run on the second computer. Therefore, this clearly implies that first application would be run on the second computer if first application has high priority than the second computer's applications. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Mashayekhi and Stiffler because Stiffler's teachings to determine the priority of a failing computer's application with the priority of another computer's applications; and determine what applications may run based on priority would improve the system of Mashayekhi and Stiffler by ensuring that high priority applications of a failed node may operate on another node when a suitable failover node cannot be found.

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24. As per claims 34 and 45, Mashayekhi teaches the method of claim 25 wherein the identifying the set of systems comprises including a selected system in the set of systems when the selected system meets a prerequisite for the first application (Col 8, lines 28-34. Sufficient resources to run application. Col 8, lines 35-40. Determine in advance which applications are designated on which nodes, and what resources each node needs. Col 8, lines 50-57. Designate failover of node based on weight of the other nodes.).

25. As per claims 35 and 46, Mashayekhi teaches the method of claim 25 wherein the identifying the set of systems comprises including a selected system in the set of systems when the first application does not exceed a limit for the selected system (Col 8, lines 28-34. Sufficient resources to run application. Col 8, lines 35-40. Determine in advance which applications are designated on which nodes, and what resources each node needs. Col 8, lines 50-57. Designate failover of node based on weight of the other nodes.).

26. Claims 30 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mashayekhi and Stiffler, in view of Imes, US Publication #2004/0049579 (Imes hereinafter).

27. As per claims 30 and 41, Mashayekhi teaches the concept of moving applications based on the priority of applications (Col 8, lines 58-66). However, Mashayekhi does not specifically teach the method of claim 27 wherein the freeing the resource comprises moving a second application that is using the resource to a second system of the plurality of systems, wherein the second application has a lower respective priority than a respective priority of the first application. Imes teaches of moving certain types of applications to another location to reduce processing demand on the resources (Paragraph 0066).

28. Since Mashayekhi teaches the importance of running applications with higher priority, it would have been then obvious to one of ordinary skill in the art at the time the invention was made combine the

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teachings of Imes with the teachings of Mashayekhi and Stiffler to move applications with lower priority to free resources because doing so would improve the system of Mashayekhi and Stiffler by improving response time and reduce both network and server load (Paragraph 0066).


Conclusion

29. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

30. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Joo whose telephone number is 571 272-3966. The examiner can normally be reached on Monday to Friday 7 to 4.

32. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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33. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 12, 2006

JJ